



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

North American Plant Breeders

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS OF THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

COMMON WHEAT

'Hawk'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 18th day of February in the year of our Lord one thousand nine hundred and eighty-two.

Attest.

[Signature]
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

[Signature]
Secretary of Agriculture



UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED
OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

INSTRUCTIONS: See Reverse.

1a. TEMPORARY DESIGNATION OF VARIETY W 391-77 & NAPB 200		1b. VARIETY NAME Hawk		FOR OFFICIAL USE ONLY PV NUMBER 8100169	
2. KIND NAME Hard red winter wheat		3. GENUS AND SPECIES NAME Triticum aestivum		FILING DATE 9/9/81	TIME 1:00 <u>P.M.</u>
4. FAMILY NAME (BOTANICAL) Gramineae		5. DATE OF DETERMINATION 1) September, 1976 2) September, 1979		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 9/9/81 1/5/82
6. NAME OF APPLICANT(S) North American Plant Breeders		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 5201 Johnson Dr, P.O. Box 2955 Mission, KS 66201		8. TELEPHONE AREA CODE AND NUMBER 913-384-4940 KS 303-532-3721 CO	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Partnership		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Stamford, CT		11. DATE OF INCORPORATION March 1973	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: G. E. Dixon P.O. Box 2955 Mission, KS 66201 R. E. Heiner or Chris Bruns P.O. Box 30 Berthoud, CO 80513					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☒ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☒ YES ☐ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☒ YES ☐ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☐ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

August 24, 1981
(DATE)

Robert E Heiner
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

Exhibit A

Origin and Breeding History of Hawk

PEDIGREE : II18889/Trapper//C0652643/3/Baca

DATE OF CROSS: 1973

HISTORY : The breeding history of Hawk started in 1973 with the cross of C0701411(F6) and Baca. This F₁ was increased in 1974, and grown as an F₂ population in 1975. Single rows of F₃ lines were grown in 1976 at 3 locations. One of these lines was advanced into regional yield trials in 1977. At this time Hawk was given an experimental number of W-391-77. In 1979, 300 head rows were grown in Berthoud, Colorado. Fourteen of these rows were selected and bulked to make the breeders seed lot grown in 1980 at Berthoud, Colorado. In 1981, 9,000 units of registered seed are expected.

Hawk is uniform and stable. Less than .05% of the plants have been rogued from the registered fields in 1981. Approximately 90% of these rogued plants have been three to ten centimeters taller than Hawk. Less than .05% of these taller plants may be encountered in subsequent generations.

Exhibit B

Novelty Statement

Hawk is most similar in appearance to the hard red winter wheat Newton. However, it can be distinguished on morphological characteristics.

Hawk has wide glumes. Newton's are classified as narrow.

Hawk has a large germ. Newton is registered as having a small germ.

Hawk has a longer acuminate beak than Newton. (See statistical data sheet on the following page.) 7.9 mm vs 5.5 mm
A 11/24/81

Hawk and Newton differ significantly in bake mix time. (See statistical data on the last page.)

8100169

Hawk vs. Newton
Beak Length Study

ANOVA TABLE

Source	df	ss	ms
Total	119	307.57	
VAR	1	158.01	158.01**
Plants within VAR (experimental error)	38	42.25	1.11
Sample within plants (sampling error)	80	107.31	1.34
F test $\frac{\text{VAR}}{\text{plants/VAR}} = \frac{158.01}{1.11} = 142.35^{**}$			

* - significant at 5% level

** - significant at both 5% and 1% level

Method: Twenty plants were taken from each variety. Three heads were then taken from each plant. One beak was measured from each of these heads.

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (TRITICUM SPP.)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S) North American Plant Breeders		FOR OFFICIAL USE ONLY	
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P.O. Box 2955, 5201 Johnson Dr. Mission, KS 66201		PVPO NUMBER 8100169	
		VARIETY NAME OR TEMPORARY DESIGNATION HAWK	

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g., 0 8 9 or 0 9) when number is either 99 or less or 9 or less.

1. KIND:

1 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

2 1 = SPRING 2 = WINTER 3 = OTHER (Specify) 2 1 = SOFT 3 = OTHER (Specify)
2 = HARD

2 1 = WHITE 2 = RED 3 = OTHER (Specify)

3. SEASON - NUMBER OF DAYS FROM planting TO:

2 3 3 FIRST FLOWERING 2 3 9 LAST FLOWERING

4. MATURITY (50% Flowering):

(same maturity as Scout)

0 0 NO. OF DAYS EARLIER THAN 2 1 = ARTHUR 2 = SCOUT 3 = CHRIS
0 0 NO. OF DAYS LATER THAN 2 4 = LEMHI 5 = NUGAINES 6 = LEEDS

5. PLANT HEIGHT (From soil level to top of head):

0 9 2 CM. HIGH
- - CM. TALLER THAN - 1 = ARTHUR 2 = SCOUT 3 = CHRIS
1 3 CM. SHORTER THAN 2 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING (See reverse):

2 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN dark

7. ANTER COLOR:

1 1 = YELLOW 2 = PURPLE

8. STEM:

1 Anthocyanin: 1 = ABSENT 2 = PRESENT 2 Waxy bloom: 1 = ABSENT 2 = PRESENT
2 Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT 1 Internodes: 1 = HOLLOW 2 = SOLID
0 4 NO. OF NODES (Originating from node above ground) 3 0 CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

1 Anthocyanin: 1 = ABSENT 2 = PRESENT 2 Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

1 Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 2 Flag leaf: 1 = NOT TWISTED 2 = TWISTED
3 = OTHER (Specify): 2 Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
1 Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT
1 3 MM. LEAF WIDTH (First leaf below flag leaf) 2 0 CM. LEAF LENGTH (First leaf below flag leaf):

11. HEAD:

12. GLUMES AT MATURITY:

13. COLEOPTILE COLOR:

15. JUVENILE PLANT GROWTH HABIT:

16. SEED:

17. SEED CREASE:

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3) moderate resistance

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Newton	Seed size	Newton
Leaf size	Newton	Seed shape	Newton
Leaf color	Newton	Coleoptile elongation	Newton
Leaf carriage	Newton	Seedling pigmentation	Newton

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

- (a) L.W. Briggie and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.
- (b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

Exhibit D

Additional Description of Hawk

28
11/24/81
Hawk is a hard red winter wheat developed by North American Plant Breeders. It has been tested as W391-77 & NAPB 200 in trials.

Hawk is a tall semi-dwarf variety with good straw strength, intermediate to early maturity, and fair winter-hardiness. It has good stem rust resistance and excellent soil borne mosaic virus resistance. Milling and baking properties are good.

Juvenile plant growth habit is semi-erect. Plant color at booting is a dark green with an erect, twisted flag leaf. Head shape is strap to tapering, middense, awned, and head color is white at maturity. Glumes are long and wide with square to rounded shoulders and long acuminate beaks. Kernels are red and elliptical with a mid-sized brush that is not collared.

Hawk is adapted to Texas, Oklahoma, Kansas, Colorado and the southern tier of counties in Nebraska.

8100169

YEAR: 1981

PAGE: ---

North American Plant Breeders

HARD RED WINTER WHEAT QUALITY
AVERAGES (four stations over 2 years)

YEAR	SAMPLE NAME	WHEAT--FLOUR QUALITY										BAKING QUALITY										TOTAL SCORE
		TEST WT.	LOC	1b/Bu	14%mb	%	YLD	FLR	FLR	PROT	ASH	MIX CURVE	ABS.	MIX TIME	CHAR	VOL	GRN	TEX	COL	MILL SCORE	BAKE SCORE	
	W 38-79	58.6		12.5	67.9	11.5	0.375	7	61.8	3.8	8	875	8	8	8	8	8	8	8	47-C	57-B	104-B
	W 24C-80	60.1		11.8	64.8	10.6	0.390	5	60.0	5.5	8	795	8	8	8	8	8	8	8	41-D	51-C	92-C
	ARCHER	57.0		12.6	68.4	11.3	0.420	6	59.4	5.1	8	840	8	8	8	8	8	8	8	49-C	52-C	97-C
	W 24C-80	58.9		12.4	72.3	11.4	0.413	6	60.2	5.5	8	802	8	8	8	8	8	8	8	49-D	53-B	104-B
	WINGS	59.2		12.6	71.5	11.9	0.412	8	62.5	4.1	9	879	8	8	8	8	8	8	8	53-B	59-A	112-B
	NEWTON	59.6		12.3	69.9	11.3	0.411	7	61.0	3.8	9	903	8	8	8	8	8	8	8	48-C	59-A	107-B

GRADES: A-EXCELLENT B-GOOD C-ACCEPTABLE D-QUESTIONABLE F-UNACCEPTABLE
 R-RATINGS: 9-10=EXCELLENT 8=GOOD 7=ACCEPTABLE 5-6=QUESTIONABLE 1-4=UNACCEPTABLE

